**Building an Apple Guild**

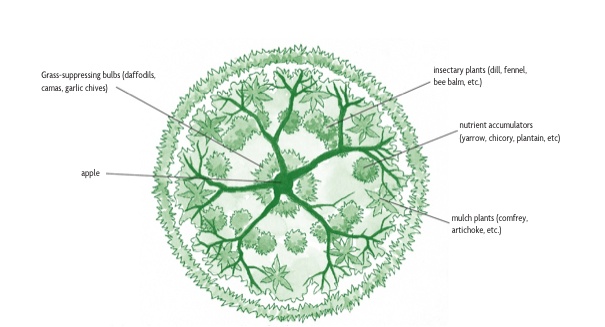
Guilds have proven to be very effective in reducing the pest population in gardens, but have not been fully researched and developed on farms. This is because it is costly to implement an arrangement of plants for acres of land. Since its high costs, we feel that it would be best to implement this holistic design in the smallest plot or just near a few trees.

SLO Creek Farms is trying to obtain a grant that requires the farms to create an educational factor for students and other community members. The guild can be a great educational tool for the farms. The ecosystem that is created can be dissected and identified based on their functions that help benefit the apple tree.

In addition, the plants that have been chosen have been selected to be used for other uses. For example, garlic is suggested as grass-suppressing bulbs because they can also be used as a repellent for gophers and apple diseases. We have selected as many plants as we could find that can provide more than one purpose for the farms.

**The Central Element**

The farms are composed entirely of apple trees so this is the only central element to consider for this project, however, any fruit or small fruit tree can be substituted.  The trees size and spacing produce constraints on the size of the guild. A larger tree has a larger area for more. The trees at SLO Creek Farms are small in size, around 6 to 8 feet tall and are planted roughly 6 feet apart. Each column is also planted about 6 from each other. This only allows a small area that must to be designed to allow pickers to harvest efficiently.



**Grass-suppressing Bulb**

Grasses compete with apple trees for nutrients. This is because they are surface feeders where apple trees principal feeding roots lie and where most of the nutrients lie. Getting rid of grasses lessens the need for neutralizers and can possibly allow the tree to flourish in the absence of the competition. Bulbs should be planted around the base of the tree. Useful bulbs for the farm include daffodils, camas, and perennial alliums. Daffodils are especially useful because animals loathe the toxins it contains. Planting these flowers around the tree base can decrease the attack by gophers and other browsers, burrowers, and bark-chews. The flowers create prettier scenery and can also be picked and sold.

**Insect- and Bird-attracting Plants**

These plants attract the “good” bugs, which can be separated into four types: predators, parasitic insects (or parasitoids), pollinators, and weed feeders. It is good to consider plants that bloom just before and after the apple blossom so that pollinators will be distract by these plants' blooms. A few insectary plants include yarrow, buckwheat, lavender, golden marguerite, bee balm, and many clovers.

The most important codling moth predator species are Neuroptera, Thysanura, and Heteroptera.

**Mulch Plants**

Mulch is simply composting in place provided moisture retention, soil cooling, and creates a living habit for organisms. Many varieties that are use for green manure can be used for this case including clovers, vetches, many grasses and grains (such as oats, wheat, and barley), mustard, crotolaria, and buckwheat. Many of these plants must be chopped down, often several times a season, to prevent from them growing too tall and taking over needed sunlight by other plants.

Mulch usually seen in landscaping is from woody plants. These make great mulch producers and also nitrogen fixers. Shrubs such as alder, Elaeagnus, Scotch broom, and ceanothus break down quickly. Trimmings are also useful for creating mulch if they are pencil thick or thinner. Chippings are usually produced from woody plants, but there is no need if the twigs are in contact with the soil. There are also living mulches that are cover crops that are interplanted with the main element of the guild. Living mulches include dwarf yarrow, thrift, Ajuga, wild strawberry, stone crop, yerba buena, and white clover.

**Nutrient Accumulators**

These plants bring up important nutrients such as potassium, magnesium, calcium, sulfur, and many others. They take these nutrients from below and concentrate them in their leaves, and once their foliage drops in fall, they can create a better top soil for other plants and trees. Nutrient accumulators include yarrow, chamomile, fennel, lamb's quarters, chicory, dandelion, and plantain.

For a full table of the dynamic nutrient accumulators use the link below:

http://oregonbd.org/Class/accum.htm

**Nitrogen fixers**

Nitrogen fixation is a natural process where the plant converts nitrogen (N2) in the atmosphere to ammonia (NH3). This is an essential part for ecological planting because fixed nitrogen is required to biosynthesize. Plants that contribute to nitrogen fixers mainly include the legume family with a few exceptions. Buffaloberry is suggested in Table 6-3 to be drought resistant.

**Soil Fumigants and Pest Repellent**

Some plants are able to repel pests by secreting substances that are toxic to eat. Although this function of the guild seems promising, it hasbeen researched less extensively as the other sections mentioned before. The author's suggestion is to be caution in planting because you may repel a "good" bug that was incorporated in the farm for another beneficial purpose. Nasturtium flowers have been well tested to contribute.

**Habitats Nooks**

Creating small habitats for lizards, frogs, snakes, and birds ensures that they will stay on the farm because of the home that is gradually developed. This creates some-what of an army base at these sites where beneficial bugs are ready to kill slugs, leaf-eating insects, and harmful larvae. It is essential that there is a balance in the system where each plant is helping one another and also to attract helpful bugs that, in turn, will help the plants surrounding it.